

18. A NEW SEA ANEMONE, *CRIBRINOPSIS ROBERTII*,
(ENDOMYARIA:ACTINIIDAE) FROM MAHARASHTRA
AND GOA COAST¹

(With three text-figures)

The first few specimens of this species collected from Cuffe Parade, Bombay (19°00'N., 72°55'E.) in November 1966, were described as *Cribrinopsis* sp. (Parulekar 1968). During 1966-69, many more specimens were collected from Arnala, Bombay, Alibag, Ratnagiri, Devgad, Malvan, Vengurla and Redi on Maharashtra Coast as well as from Baga (Calangute) and Caranzalem in the Union Territory of Goa. All the abovementioned localities are situated between 15°26'N. to 19°27'N. and 72°44'E. to 73°41'E. Recently a small collection of Sea Anemones from Mandapam, South India, sent for identification by Dr. Robert Robertson of the Academy of Natural Sciences, Philadelphia, held a few individuals of the new species.

This small-sized anemone commonly occurs attached to oyster shells and to the sand veneered rocks in the intertidal region. At Mandapam, Dr. Robertson (personal communication) reports, 'specimens are found in association with four different species of Epitoniid gastropods'. At first sight, this actinarian can be confused with *Anemonia indicus*, Parulekar 1967, occurring in the same habitat, but can be differentiated by the presence of dark red verrucae on a light pink column. The specimens are, generally, found in large assemblages, completely covering the lee face of rocks. The area inhabited by this species is between the supralittoral fringe and the midlittoral zone of Stephenson's classification (1949).

The new species is named after Dr. Robert Robertson, in appreciation of his goodwill and co-operation in the preparation of this paper.

***Cribrinopsis robertii*, sp. nov.**

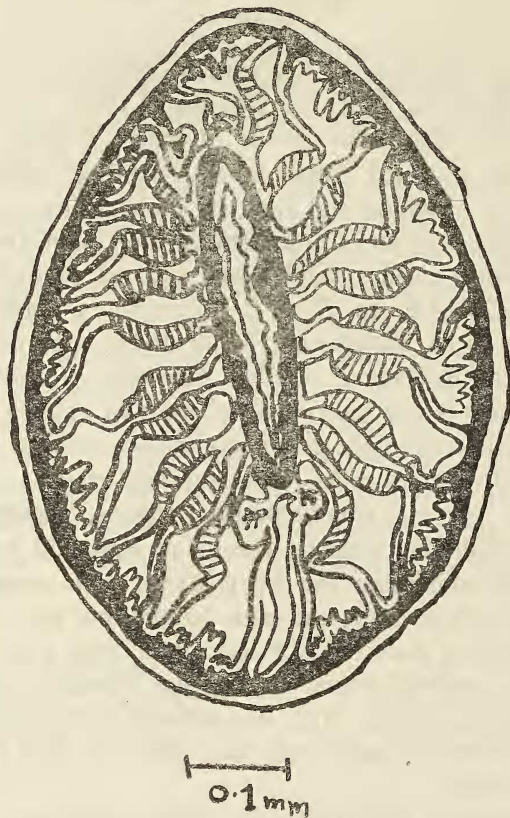
(Text-figs. 1, 2, & 3)

Material: Holotype, collected at Malvan (16° 03' N.; 73° 28' E.) in Ratnagiri District of Maharashtra State, India, on 31st March 1968. Paratypes: five well grown specimens from the same locality. Both the holo- and the paratypes would in due course be deposited in the National Collections, Zoological Survey of India, Calcutta.

¹ Part of this work was carried out at the Bombay Natural History Society, during the tenure of a Post-Doctoral Research Fellowship of C.S.I.R., India.

Description

Basal disc. Well developed, strongly adherent, flat, disc-like and somewhat irregular in outline. Colour translucent, pinkish-white.



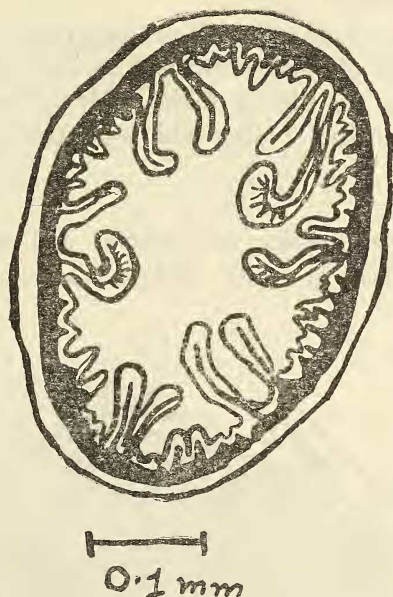
Text-fig. 1: *Cribrinopsis robertii* sp. nov.: Horizontal section through actinopharynx, showing mesenterial arrangement.

Radial lines of mesenterial insertion, clearly visible, in preserved anemone. Diameter of basal disc: 12-18 mm.

Ectoderm cells of the basal disc are narrow, cylindrical and glandular. The outer surface of ectoderm is bordered with wide distal part of narrow gland cells. There are many long eosinophilic glandular threads in the basal part of the ectodermal cells.

Column. Not divisible into scapus and capitulum. Short, as long as broad. Column wall thin and translucent. Longitudinal lines of insertion of mesenteries, clearly visible through column wall, in preserved specimens. In live anemone, the colour of the column light-pink or

light-yellowish with dark red verrucae, arranged in longitudinal rows from margin to base. Colour becomes lighter towards the proximal part of the anemone. Verrucae are large near the marginal part of



Text-fig. 2: *Cribrinopsis robertii* sp. nov. : Horizontal section through the basal part of the column.

the column and very small in the basal part and, therefore, likely to be overlooked. Frequently, shell fragments are attached to the column. Length of the column 10-18 mm.

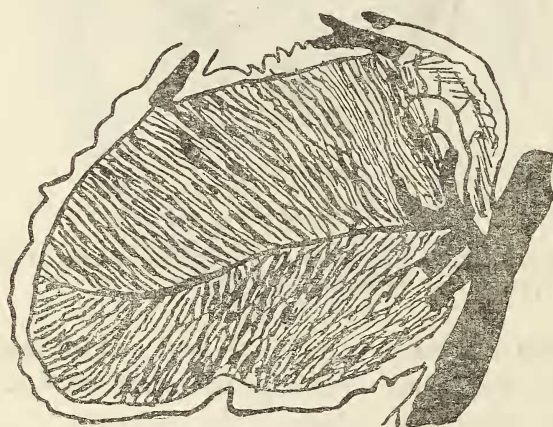
Ectoderm of the column made up of very high cells, arranged in two layers. The outer cells are mostly glandular and eosinophilic, whereas, the inner cells are narrow with basal innervations. Mesogloea thinner than the ectoderm, with a number of sparsely distributed wandering cells, from which arise the endodermal muscles. Endoderm made up of conical glandular cells with many dark granules in the upper part.

Tentacles and Oral Disc. Tentacles hexamerously arranged in 4 cycles of $6+6+12+24=48$. Inner tentacles longer than outer ones. Tentacles thin and gently tapered. A deep fosse present. Pseudospherules present. In between pseudospherules and the last cycle of tentacles, there are 4-6 marginal spherules (acrosphere), with spirocysts,

basitrichs and, possibly, atrichs. The marginal spherules, with the exception of basal part, are covered, with nematocysts arranged in rows. Oral disc circular in outline, broad and translucent. Stomodeum slightly raised up. Colour of the oral disc and the tentacles whitish semitransparent. In some specimens, the tentacles on their sides possess two longitudinal pink stripes.

Ectoderm of the tentacle is about four times the height of the endoderm. The cells are interlocked and covered with long spirocysts. Ectodermal muscles are slightly folded. Mesogloea thin. Endoderm of tentacles and oral disc is laden with algae (zooxanthellae) and pigmented granules.

Mesenteries. Not divisible into macro- and microcnemes. Irregularly to hexamerously arranged. 2nd and 3rd cycles of mesenteries,



0.1 mm

Text-fig. 3 : *Cribrinopsis robertii* sp. nov. : Longitudinal section of sphincter.

fertile. In lower part of the column, number of mesenteries decreases and there are approximately half as many mesenteries at the base as in the oral region (Figs. 1 & 2). Retractors of the mesenteries well developed, diffuse and circumscribed. 3 pairs of directives and 3 siphonoglyphs. The presence of more than two siphonoglyphs may be due to asexual fission. As remarked by Uchida (1938), 'the siphonoglyphs have secondarily formed in the parts corresponding to the mesen-

terial parts of the first series after the fission. When the fission is repeated, the actinian comes to have more than two siphonoglyphs'. Algae (zooxanthellae) present in the endoderm of the mesenteries. Sphincter (Fig. 3) is small but strong, pinnately circumscribed. Parietal muscles weakly developed.

Cnidom. The distribution and size (in microns) of different categories of nematocysts, are as follows:

Tentacles :

Spirocysts	..	..	..	..	8.4-22.4 × 1.4-2.1
Basitrichs	..	..	..	..	14.0-16.8 × 2.1

Acrosphere :

Spirocysts	..	..	..	..	14.4-21.0 × 1.7-3.3
Basitrichs	..	..	..	..	11.1-20.0 × 2.2-3.3
Atrichs	..	..	..	..	20.2-27.2 × 1.6-3.3

Actinopharynx :

Basitrichs	..	..	..	..	14.0-16.6 × 2.1
Microbasic p-mastigophores	..	..	..	..	15.2-17.5 × 1.6-2.8

Column :

Basitrichs	..	..	..	..	12.0-16.2 × 2.1-2.8
Basitrichs	..	..	..	..	20.8-23.1 × 3.5-4.1
Atrichs	..	..	..	..	7.5-10.6 × 1.4-2.1

Remarks: *Cribrinopsis robertii* sp. nov., is the first species of the genus *Cribrinopsis* to be recorded from tropical waters. The new anemone is the third species assigned to this genus, the other two being the type species, *C. similis* (Carlgren 1921 & 1942) and *C. williamsi* (Carlgren 1940) reported from low Arctic and Alaska, respectively. *C. robertii* sp. nov., differs from the previously described species in its habitat, anatomical features as well as in geographical distribution.

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November 15, 1969.

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